The MOSAICC Study - Methodology

Titmarsh, G. J., Anderson, L. A., McMullin, M. F., Clarke, M., Duncombe, A., de Vocht, F., Fritschi, L., Mesa, R., Purdue, M., & Frank, A. (2014). *The MOSAICC Study - Methodology*. Poster session presented at European School of Hematology International Conference on Myeloproliferative Neoplasms. , Albufeira, Portugal.

MOSAICC

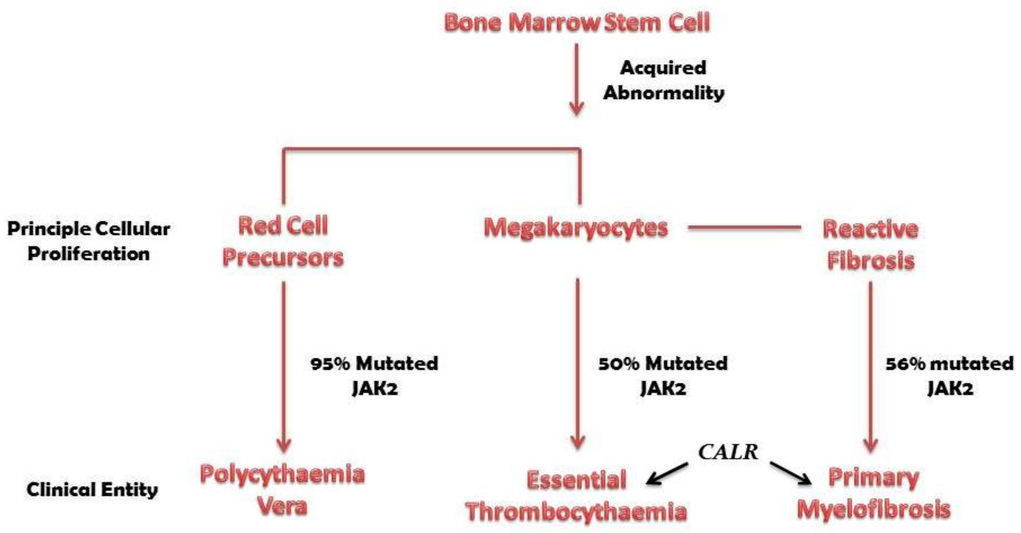
MyelOproliferative neoplasmS: An In-depth Case-Control STUDY

Glen Titmarsh, Mary Frances McMullin, Andrew Duncombe, Mike Clarke, Frank De Vocht, Lin Fritschi, Ruben Mesa, Mark Purdue, Christopher Tapper, Claire Leathem, Emma Gaunt, Lesley Anderson.

http://mosaicc.qub.ac.uk/

Introduction

- The myeloproliferative neoplasms (MPNs) are a rare heterogeneous group of diseases.
- Characterised by an overproduction of both mature and immature blood cells of the myeloid lineage.
- The *JAK2V617*F mutation is central to all three disease entities.
- Newly discovered *CALR* mutation accounts for *JAK2* / *MPL* negative MPN genetic profiles.



- The aetiology of these disease entities remains unknown.
- A systematic review conducted by Anderson *et al.* 2011. identified ethnical, occupational, medical and environmental risk factors.
- The paucity of data investigating MPN aetiology warranted the need for an exploratory case-control study.



Study Aim

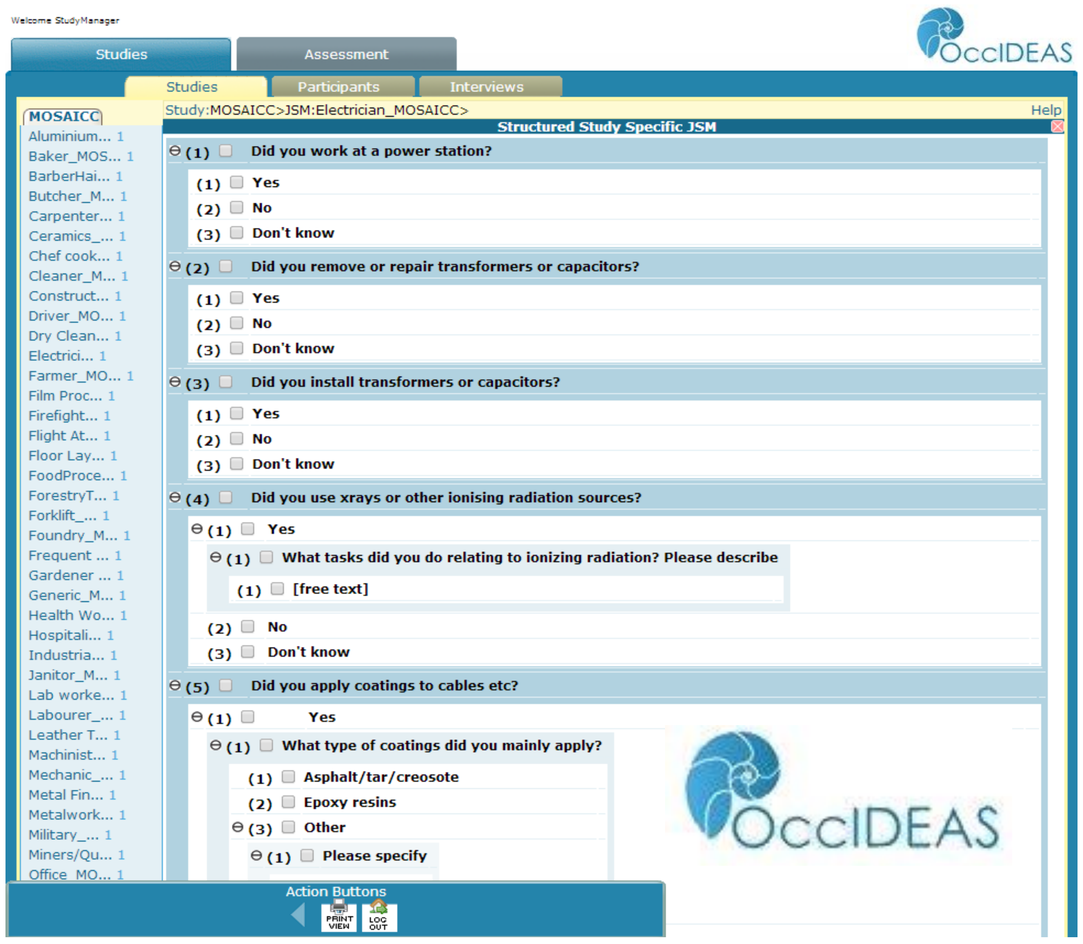
- Evaluating;
- Recruitment and response rates by randomisation of;
  - Monetary incentive
  - MPD Voice Trolley token
  - MOSAICC branded pen / plain pen / no
- Administering a telephone questionnaire using Skype and Qualtrics software.
- Assessment of occupational exposure using OccIDEAS and comparing this to FINJEM software.
- Collection of saliva, blood spots and venous blood samples for DNA extraction and quantification and toe-nail samples for elemental analysis.
- Utilising the myeloproliferative neoplasm symptom assessment form (MPN-SAF) to assess quality of life.
- Methodological aspects to develop and optimise protocol for a future, multi-centred, UK-wide study investigating the aetiology of MPNs.


OccIDEAs

- A web-based application using expert exposure methods to assign exposure status by predefined algorithms for specific occupations.

Agents which can be assessed using OccIDEAs software;

- Adhesives (solvent glues, contact adhesives)
- Blood borne pathogens
- Combustion products (diesel exhaust, petrol exhaust, other exhausts, other PAHs)
- Fertilizers (mineral, natural)
- Formaldehyde
- Inorganic dusts (asbestos, fibreglass, silica, other inorganic fibres/dusts)
- Metals (lead, other toxic metals)
- Nitrosamines
- Oils (natural, mineral, synthetic)
- Organic dusts (wood, grain, cotton, other organic dusts)
- Polychlorinated biphenyl (PCBs)
- Pesticides (organochlorines, organophosphates, phenoxy herbicides, other herbicides, other pesticides)
- Pigments (paints, dyes, other pigments)
- Radiation (ionizing radiation, UV, ELF, RF)
- Resins (acrylamide, resins)
- Shift work, jetlag
- Solvents (benzene, other aromatic solvents, chlorinated solvents, aliphatic solvents, alcohol)
- Sterilizing agents (ethylene oxide, other sterilizing agents)

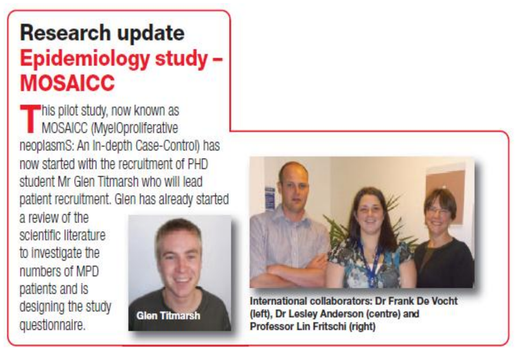


MOSAICC Study Recruitment to date

- **189** participants recruited;

89 Cases | **39 GP Controls** | **61 Friend/Family Controls**

UK WIDE STUDY PLANNED FOR 2014/15

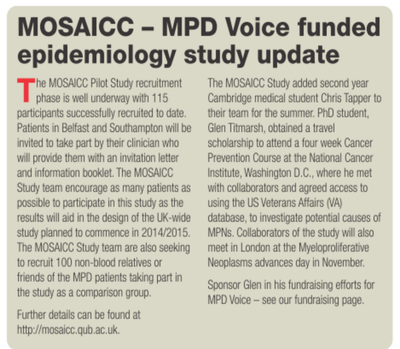


Research update
Epidemiology study – MOSAICC

This pilot study, now known as MOSAICC (MyelOproliferative neoplasmS: An In-depth Case-Control) has now started with the recruitment of PHD student Mr Glen Titmarsh who will lead patient recruitment. Glen has already started a review of the scientific literature to investigate the numbers of MPD patients and is designing the study questionnaire.

Glen Titmarsh

International collaborators: Dr Frank De Vocht (left), Dr Lesley Anderson (centre) and Professor Lin Fritschi (right)



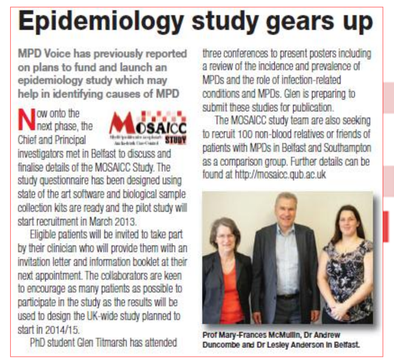
MOSAICC – MPD Voice funded epidemiology study update

The MOSAICC Pilot Study recruitment phase is well underway with 115 participants successfully recruited to date. Patients in Belfast and Southampton will be invited to take part by their clinician who will provide them with an invitation letter and information booklet. The MOSAICC Study team encourage as many patients as possible to participate in this study as the results will aid in the design of the UK-wide study planned to commence in 2014/2015. The MOSAICC Study team are also seeking to recruit 100 non-blood relatives or friends of the MPD patients taking part in the study as a comparison group.

Further details can be found at http://mosaicc.qub.ac.uk.

The MOSAICC Study added second year Cambridge medical student Chris Tapper to their team for the summer. PhD student, Glen Titmarsh, obtained a travel scholarship to attend a four week Cancer Prevention Course at the National Cancer Institute, Washington D.C., where he met with collaborators and agreed access to using the US Veterans Affairs (VA) database, to investigate potential causes of MPNs. Collaborators of the study will also meet in London at the Myeloproliferative Neoplasms advances day in November.

Sponsor Glen in his fundraising efforts for MPD Voice – see our fundraising page.



Epidemiology study gears up

MPD Voice has previously reported on plans to fund and launch an epidemiology study which may help in identifying causes of MPD

Now onto the next phase, the Chief and Principal investigators met in Belfast to discuss and finalise details of the MOSAICC Study. The study questionnaire has been designed using state of the art software and biological sample collection kits are ready and the pilot study will start recruitment in March 2013.

Eligible patients will be invited to take part by their clinician who will provide them with an invitation letter and information booklet at their next appointment. The collaborators are keen to encourage as many patients as possible to participate in the study as the results will be used to design the UK-wide study planned to start in 2014/15.

PhD student Glen Titmarsh has attended three conferences to present posters including a review of the incidence and prevalence of MPDs and the role of infection-related conditions and MPDs. Glen is preparing to submit these studies for publication.

The MOSAICC study team are also seeking to recruit 100 non-blood relatives or friends of patients with MPDs in Belfast and Southampton as a comparison group. Further details can be found at http://mosaicc.qub.ac.uk

Prof Mary-Frances McMullin, Dr Andrew Duncombe and Dr Lesley Anderson in Belfast.